

WHAT IS CLAIMED IS:

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1. An ignition timing device for timing an engine having a timing port, the ignition timing device comprising:

a sensor securable in the timing port to provide a timing mark signal indicative of presence of a timing mark of the engine proximate the variable reluctance sensor;

an ignition sensor adapted to provide an ignition signal indicative of the occurrence of an ignition spark;

a comparator receiving the timing mark signal and the ignition signal, the comparator providing an output signal indicative of substantial simultaneous occurrence of the timing mark signal and the ignition signal; and

an indicator receiving the output signal and operable as a function thereof.

2. The ignition timing device of claim 1 and further comprising:

a delay element receiving the ignition signal and providing a delayed signal having a selected delay from the ignition signal; and

wherein the comparator receives the delayed signal, the comparator providing an output signal indicative of substantial simultaneous occurrence of the timing mark signal and the delayed signal.

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3. The ignition timing device of claim 1 and means for filtering ignition sparks of compression strokes from ignition sparks of compression and exhaust strokes of a selected cylinder.

4. The ignition timing device of claim 1 wherein the sensor comprises a variable reluctance sensor.

SubC 5. The ignition timing device of claim 4 wherein the variable reluctance sensor comprises;

a support tube insertable in the port and having a bore extending from a first end to a second end;

a sensor housing insertable in the bore; and a variable reluctance probe disposed in the sensor housing.

6. The ignition timing device of claim 5 wherein the support tube includes exterior threads adapted to mate with threads of the port.

7. The ignition timing device of claim 6 wherein the support tube includes interior threads and the sensor housing includes exterior threads adapted to mate with the interior threads.

8. The ignition timing device of claim 1 wherein the ignition sensor includes a comparator providing the ignition signal, wherein the ignition signal is indicative of a spark exceeding a selected threshold.

9. The ignition timing device of claim 8 wherein the selected threshold is constant.

10. The ignition timing device of claim 9 and further comprising a peak detector, and wherein the selected threshold is a function of at least one previous detected spark.

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11. The ignition timing device of claim 1 wherein the ignition sensor comprises a light detector.

12. A method for timing an engine having a timing port through which a timing mark can be seen, the method comprising:

securing a variable reluctance sensor proximate the timing port;
sensing the presence of the timing mark of the engine with the variable reluctance sensor and providing a timing mark signal as a function thereof;
sensing an occurrence of an ignition spark and providing an ignition signal as a function thereof;
comparing the timing mark signal to the ignition signal and providing an output signal indicative of substantial simultaneous occurrence of the timing mark signal and the ignition signal; and
operating an indicator as a function of the output signal.

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13. The method of claim 12 and further comprising:
generating a delayed signal having a selected delay from the ignition signal; and
wherein comparing comprises comparing the timing mark signal to the delayed signal

and providing an output signal indicative of substantial simultaneous occurrence of the timing mark signal and the delayed signal.

14. The method of claim 13 wherein sensing the occurrence of the ignition spark and providing an ignition signal as a function thereof includes:

filtering ignition sparks of compression strokes from ignition sparks of compression and exhaust strokes of a selected cylinder, the ignition signal being indicative of only the ignition sparks of compression strokes.

15. The method of claim 12 and further comprising comparing the ignition signal with a selected threshold.

16. The method of claim 15 and further comprising:
detecting a peak amplitude of the ignition signal; and
forming the selected threshold as a function of the ignition signal from at least one previous spark.

17. A variable reluctance sensor for use with an ignition timing device, the variable reluctance sensor comprising:

a support tube insertable having a bore extending from a first end to a second end;

a sensor housing insertable in the bore; and
a variable reluctance probe disposed in the sensor housing.

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18. The variable reluctance sensor of claim 17 wherein the support tube includes exterior threads.

19. The variable reluctance sensor of claim 18 wherein the support tube includes interior threads and the sensor housing includes exterior threads adapted to mate with the interior threads.

20. The variable reluctance sensor of claim 17 and further comprising a plurality of variable reluctance probes disposed in the sensor housing.